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# Animal Welfare Information Center

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## CONGRESS IN SESSION

by Tim Allen

- H.R. 765 To ensure maintenance of a herd of wild horses in Cape Lookout National Seashore.

Introduced February 13, 1997, by Walter Jones (R-North Carolina) and referred to the Committee on Resources. Passed the House on July 22 by a vote of 416-6. This act may be cited as the "Shackleford Banks Wild Horses Protection Act."

### "SEC. 2. MAINTENANCE OF WILD HORSES IN CAPE LOOKOUT NATIONAL SEASHORE.

Section 5 of the Act entitled 'An Act to provide for the establishment of the Cape Lookout National Seashore in the State of North Carolina, and for other purposes,' approved March 10, 1966 (16 U.S.C. 459g-4), is amended by inserting '(a) after 'SEC. 5.', and by adding at the end the following new subsection:

(cont'd p. 14)



Utrecht University  
The Netherlands

## PREX On-line Information Service: Biomedical and Laboratory Animal Databases

by

Tim Allen

U.S. Department of Agriculture, Animal Welfare Information Center

*Knowledge is of two kinds: we  
know a subject ourselves, or we know  
where we can find information upon it.  
(Samuel Johnson, 1775)*

In October 1996, I had the good fortune to attend the World Congress on Alternatives and Animal Use in the Life Sciences held in Utrecht, The Netherlands. And good fortune it was spending part of an afternoon with Hans Kuiper, who manages the not-for-profit PREX on-line information service at Utrecht University. I'm always on the lookout for ways to improve AWIC's ability to answer patrons' requests for practical information on laboratory animals or alternatives to the use of those animals. After using the PREX system for more than 9 months, I can say without a doubt, if you use laboratory animals in a research or educational setting, you should have access to this marvelous system of databases. In the next few pages, we'll take a look at the type of information that is easily retrieved from PREX, technical requirements, and how to obtain access to this database.

The PREX on-line information service will give you easy access to major sources of the world's biomedical and veterinary literature through the databases MEDLINE, AGRICOLA, CAB International, and

Cambridge Scientific Abstracts' LIFE SCIENCES. But the greater utility of PREX lies in its core databases on laboratory animal sciences and alternatives. These databases give computer access to references and information that are not available on any other database system currently accessible by the scientific community. And the databases are updated on a continuous basis. Need concise information on the physiology or pathology of an ACI rat? Look in STRAIN DESCRIPTIONS, and you'll find information on median lifespans, incidence of cystic kidneys, atrophic testes, spontaneous adenocarcinomas, etc. Other information includes drug effects, reproductive performance, and, of course, literature references. Trying to locate a source of Djungarian hamsters? Look in STRAIN SOURCES for complete contact information and general health status (SPF, minimal disease, etc.). Want to find the abdominal skin pH of Sprague-Dawley rats? Look in BIOLOGICAL VALUES. Through collaborations with scientists and research facilities around the world, PREX has produced a unique and comprehensive source of laboratory animal information. The databases include:

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## MAJOR DATABASES

### ● AGRICOLA 1970-present

Literature citations (often with abstracts) covering veterinary medicine, laboratory animal sciences, animal welfare, alternatives, as well as agriculture and other life sciences. Sources include 1,400 journals, as well as textbooks, reports, monographs, theses, newsletters, professional magazines, U.S. and foreign Government publications. Size: 4 million records. Produced by the National Agricultural Library, U.S. Department of Agriculture, U.S.A.

### ● CAB-INTERNATIONAL DATABASES 1972-present

Literature citations (often with abstracts) covering veterinary science, laboratory animal science, animal welfare, animal health, animal breeding, dairy science, dairy technology, and nutrition. Sources include journals, books, serial monographs, reports, and newsletters, theses, symposium proceedings, etc. Size: 800,000 records. Updated every month. Produced by CAB-International, U.K.

### ● MEDLINE 1984-present

Literature citations (often with abstracts) covering the broad field of biomedical and clinical research, veterinary medicine, laboratory animal science, animal welfare, and alternatives. Sources include 3,400 journals. Size: 3.5 million records. Produced by the U.S. National Library of Medicine, U.S.A.

### ● CSA LIFE SCIENCES 1985-present

Literature citations (often with abstracts) covering 20 life science disciplines from biomedical topics to viral genetics, includes information on laboratory animal science. Sources include more than 5,000 journals, selected books, conference reports, and U.S. patents. Size: 1,074,000 records. Produced by Cambridge Scientific Abstracts, U.S.A.

## CORE DATABASES

### ● AT ALTERNATIVES circa 1920's-present

Literature citations on alternatives to animal experiments. Size: 13,000 records. Updated twice a year. Produced by Akademie für Tierschutz, Germany. Supported by National Center for Alternatives (INCA) in The Netherlands.

### ● BIOLOGICAL VALUES

Biological reference values of laboratory animals, and hematological and clinical chemistry values with literature references and statistical parameters. This database is currently being developed. Size: 7,000 records. Produced by PREX, Utrecht University, The Netherlands.

### ● BIOMEDICAL DISSERTATIONS

Biomedical academic dissertations (including abstracts) from Dutch universities. Size: 3,600 records. Produced by Euroscience, The Netherlands.

### ● BOOKS

Contents (chapter titles and bibliographic details) of 250 books on laboratory animal science. Size: 6,500 records. Produced by PREX, Utrecht University, The Netherlands.

### ● CABILINE

Index of agricultural and veterinary journals including journal title, ISSN, publisher, and country of publication. Size: about 9,000 records. Produced by CAB-International, U.K.

### ● CURRENT CITATION 1995-present

Literature citations (without abstracts) of 11,000 journals. These are the most frequently requested journals for document delivery by the British Library. Size: 2 million records. Updated every month. Produced by the British Library, U.K.

### ● DRUG DOSAGES

Drug dosage database for non-antibiotic drugs. Contains information on 12,000 dosing regimens for more than 800 drugs. More than 4,500 of the dosages provided are for anesthetic and analgesic drugs. Animals covered include all laboratory and farm animals, zoo animals, fish, amphibians, and reptiles. Corresponds to VETBASE, a PC version (see *AWIC Newsletter Spring 1997* 8 (1): 20). Produced by J.D. Kuiper, Ph.D. and H.J. Kuiper, Ph.D., Utrecht University, The Netherlands.

### ● INSIDE CONFERENCES

Citations (without abstracts but including keywords) covering conferences on a wide range of topics including biomedical and clinical research. Information includes author and title of presentation, conference title, date, and venue. Size: Over 2 million records. Produced by the British Library, U.K.

### ● LABORATORY ANIMAL LITERATURE circa 1920's-present

Literature references (including keywords) from the core journals in laboratory animal science. Includes information on husbandry, genetics, origins of animal strains, techniques, veterinary care, etc. Size: 12,000 records. Produced by PREX, Utrecht University, The Netherlands.

### ● NORINA (Norwegian Inventory of Audiovisuals)

Index of audiovisual media (including video tapes, slides) with abstract, availability, and other details. Source for teaching material on laboratory animal science. Size: 2,700 records. Updated every year. Produced by Adrian Smith, Ph.D. and Richard Fosse, D.V.M., Norway.

### ● SERLINE

Index of biomedical journals with complete and abbreviated title, language, ISSN, and keywords to describe the scope of the journal. Size: over 31,000 records. Updated every year. Produced by the U.S. National Library of Medicine, U.S.A.

### ● STRAIN DESCRIPTION

Description of the characteristics of inbred mouse and rat strains. Subjects are: origin, behavior, physiology, pathology, literature references. Size: 700 records. Produced by M.F.W. Festing Ph.D., U.K.

(PREX cont'd p. 17)



# Lighting Conditions For Laboratory Monkeys: Are They Adequate?

by

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## Introduction

Research laboratories generally keep nonhuman primates and other research animals under strictly controlled light/dark rhythms to avoid variability of research data because photoperiod (daily exposure to light) profoundly affects animals. Light intensity (illumination), however, has been given relatively little consideration in the scientific literature and consequently has been widely overlooked as an environmental factor possibly affecting, in undesired ways, the well-being of research subjects and the data collected from them.

## Illumination in Cages Arranged in Tiers

Illumination in cages is likely to be the most variable ambient factor in the average animal room (1), especially when the cages are arranged in tiers. Lower-row cages are not only farther away from the light source, but are also located in the shade area of the upper-row cages. Animals housed in such bottom cages live in a crepuscular environment (fig. 1). The little light they receive is reflected from walls, and its spectral quality is accordingly altered. It would be unrealistic to expect uniform lighting conditions and hence uniform research results in such a cage arrangement. This problem has been well documented in the rodent room in which the illumination of lower-row animals is usually only a fraction of that of upper-row animals (1-4).

The situation is similar in the nonhuman primate room in which monkey cages are commonly stacked in two tiers (5-15). Living in the shade of the upper-row, animals housed in the lower-row automatically receive much less light (8, 11, 12, 13, 16, 17, 18, 19). Illumination in standard lower-row cages is

often so dim (for example, 22 lux, 20) that animal care personnel have to use flashlights for routine in-cage inspection (21).

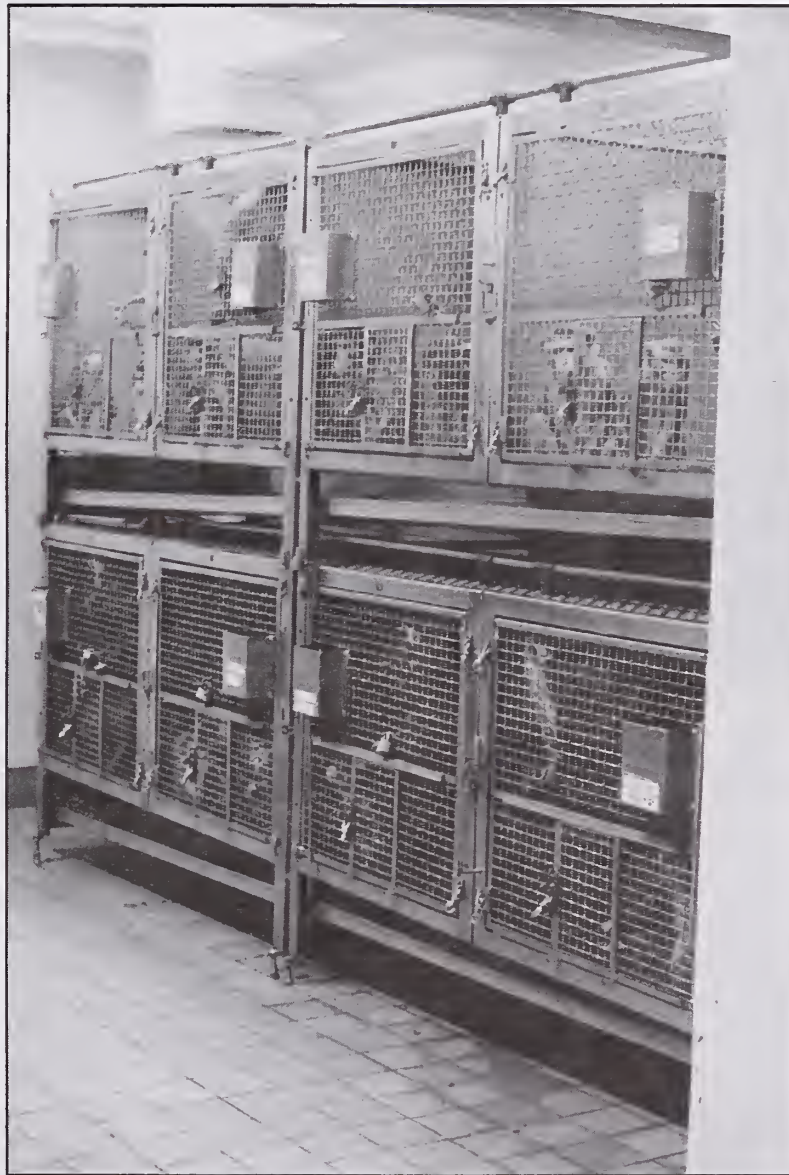
Several authors have acknowledged this problem and have warned that the conspicuous variation in lighting conditions between upper-row and lower-row cages should be considered as a contributing cause to the problem of cage-related differences in research data that cannot otherwise be accounted for (3, 4, 22, 23). Indeed, the uneven distribution of light in stacked cages may have such a profound effect on experimental results that an animal's cage location must be mentioned in the research protocol as a data-influencing variable. However, most authors pay little attention to this critical detail.

## Effects of Illumination on Monkeys

There are only a few studies examining the effect of light intensity on monkeys, but the available evidence strongly indicates that exposing monkeys to poor lighting conditions has a destabilizing effect on their neuroendocrine system.

Heger et al. (24) assessed the fertility of breeding marmosets (*Callithrix jacchus*) that were unintentionally kept in too-dark rooms. Lighting conditions were particularly poor in bottom-row cages where the illumination was only 20 lux. Females living in these cages showed unusually extended ovulatory cycles, abnormally low levels of steroid hormones, and a very low fecundity. Increasing the brightness in the cages resulted in a recovery of the animals' reproductive system, and breeding rates more than doubled. Experimental studies conducted in rodents support these findings. Reproductive vari-

ables such as gonad weight, conception rate, litter size, and regularity of the estrous cycle are affected negatively by low light intensity, positively by high light intensity (1, 25-29).



**Figure 1. The conventional double-tier cage arrangement for monkeys makes adequate, uniform illumination impossible. A flashlight has to be used to read the chest tattoos and to assess the well-being of animals housed in the relatively dark lower-row cages. A flashlight also has to be used to check the cleanliness of the interior of the lower-row cages, and to check the contents of their drop pans.**



The inhibitory effect of insufficient illumination on the reproductive system is mediated by melatonin that is secreted by the pineal gland (epiphysis) in larger quantities during times of low rather than high illumination (30-33). Fiske and Macdonald (34) demonstrated in macaques (*Macaca fascicularis*) that melatonin treatment causes irregularities in menstrual bleeding patterns, an increased incidence of anovulatory and skipped cycles, a retardation of ovulation, and a shortened luteal phase (34). Rodent studies indicate that melatonin affects gonadal activity by inhibiting the release of hypophyseal gonadotrophins (35-39).

## Illumination Guidelines

Professional and regulatory guidelines seemingly recognize illumination as a variable that affects not only scientific data but also the well-being of the research subject and the quality of animal husbandry. Most regulations, however, seem to overlook the fact that uniform lighting conditions, though very desirable, are impractical in the conventional monkey room with double-tier cage arrangement.

The International Primatological Society recommends in its *International Guidelines for the Acquisition, Care, and Breeding of Nonhuman Primates* that illumination should be uniform and sufficient for adequate inspection of nonhuman primates. Lighting should not be obtrusive to the well-being of the animals (40).

The U. S. Department of Agriculture specifies in the animal welfare regulations that lighting for nonhuman primates must be uniformly diffused and provide sufficient illumination to aid in maintaining good housekeeping practices, adequate cleaning of cages, satisfactory inspection of animals, and to ensure the animals' well-being (41).

The Canadian Council on Animal Care stipulates in its *Guide to the Care and Use of Experimental Animals* that lighting of laboratory animals should provide good visibility and uniform illumination (42).

The National Research Council of the United States implicitly acknowledges in its latest revision of the *Guide to the Care and Use of Laboratory Animals* that it is difficult to create uniform lighting conditions when animals are housed in stacked cages. The new *Guide* therefore no longer recommends that lighting should be uniformly diffused (43) but simply that lighting should be diffused throughout an animal holding area to provide sufficient illumination for the well-being of the animals and to allow good housekeeping practices (44). The *Guide* explicitly notes that illumination should be sufficient for adequate inspection of all animals *including* those kept in the bottom-most cages in racks (44).

The Council of the European Communities states in its *Guidelines for Accommodation and Care of Animals* that it is necessary to provide adequate lighting to satisfy the biological requirements of animals and to provide a satisfactory working environment (45).

## Discussion

The prevailing monkey cage arrangement makes adequate, that is uniform, illumination impossible, because the cages of upper-rows block the light from entering the cages of lower-rows. Animals housed in lower-rows are usually subjected to an artificial night/dawn rhythm without exposure to reasonably bright light. This situation is unacceptable for several reasons:

1) Monkeys—with the exception of one species (owl monkey, *Actus trivirgatus*)—are diurnal animals who are naturally more active in a bright environment such as the upper-row cage, than in a twilight environment such as the lower-row cage (12,46). Keeping them in the dim, cavelike ambiance of the typical lower-row cage (fig. 1) cannot be conducive to their general well-being. Human primates would be at risk of developing depressive moods under like conditions (47,48).

2) Poor illumination may cause an imbalance of the neuroendocrine control system of reproduction and possibly also of other body functions (49-51). Physiological data collected from monkeys who live under insufficient lighting conditions have therefore only limited scientific value.

3) Housing experimental subjects in cages of different light intensities (fig. 1) is introducing a dependent variable that increases the number of test animals needed for statistically significant results (52). Refined illumination techniques that diminish or eliminate sources of variability could reduce the number of animals required in research protocols, particularly those dealing with photosensitive processes such as reproduction.

4) The work environment for attending animal care personnel is unsatisfactory when the illumination of cages is so poor that professional cleaning, adequate inspection, and correct identification of the occupant(s) can be achieved only with flashlights (fig. 1).

## What Can Be Done to More Evenly Illuminate Caged Monkeys?

1) Replacing the solid, light-impermeable side panels/walls of lower-row cages with light-permeable panels makes the cage interior more accessible to light (20).

2) Mounting the light fixtures over the midline of the aisles rather than over the top cages increases the amount of light entering lower-row cages.

3) Arranging the two cage rows in such a way that the lower-row is partially standing out under the upper-row increases the shade-free illumination field of the lower-row cages.

These refinement options are compromise solutions that can markedly increase the light intensity in lower-row cages, thereby enhancing the quality of the caged animal's living environment. It should be remembered, however, that light intensity decreases with the square of the distance from the light source (53). This physical law makes it impossible to guarantee uniform lighting conditions because the distance from the light source is irrevocably much longer for animals living in lower-row cages than for animals living in upper-row cages close to the light fixtures in the ceiling.

It has been proposed to rotate cage positions relative to the light source to reduce inappropriate illumination(3,44). This management practice allows half the animals of a room to temporarily move from dark into bright cages, while the other half of them has to move into dark cages in exchange. The inherent inadequacy of the illumination conditions in lower-rack cages is not addressed by this technique.

Caging all animals at the same level of the room is the only solution to the problem of uneven lighting conditions:

a) The living environment of all animals can be arranged at the same distance from the light source.



b) All animals receive the same quality of direct rather than reflected lighting.

c) The illumination field of the whole room is free of shade-casting cage structures.

## Acknowledgments

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## European Union: Farm Animal Welfare Legislation

The welfare of animals is to be given new status within the European Union following the success of a UK initiative at this week's Inter-Governmental conference.

A legally binding Protocol will be added to the Treaty of Rome recognizing that animals are sentient beings and requiring that their welfare needs are properly taken into account in the development of the Community's policies on agriculture, transport, the internal market and research.

### The new EU Protocol

"THE HIGH CONTRACTING PARTIES, DESIRING to ensure improved protection and respect for the welfare of animals as sentient beings, HAVE AGREED upon the following provision which shall be annexed to the Treaty establishing the European Community:

In formulating and implementing the Community's agriculture, transport, internal market and research policies, the Community and the Member States shall pay full regard to the welfare requirements of animals, while respecting the legislative provisions and customs of the Member States relating in particular to religious rites, cultural traditions and regional heritage."

Commenting on the new protocol, The United Kingdom Animal Welfare Minister, Elliot Morley, said:

"This Government has made clear the importance it attaches to maintaining and developing high standards of animal welfare, and I welcome our success in negotiating this agreement. It represents a major advance in the collective thinking of the European Union.

"Adoption of the protocol is not an end in itself, but it confirms that animal welfare has a place on the long-term agenda of the Union. It will ensure that all relevant European legislation takes into account this Government's desire to see the highest possible standards of animal welfare."

Source: United Kingdom Ministry of Agriculture, Forestry, and Fisheries news release, June 18, 1997.



# Environmental Enrichment: Does It Reduce Barbering in Mice?

by

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One of the problems in maintaining group-housed mice is barbering—one or more mice chewing (barbering) the fur and whiskers of other mice. A group of 300 mice of both sexes, which are being studied over their lifetime, were housed in a climate-controlled environment with night/day cycles. In order to alleviate barbering, their environment was enriched with toys and other objects at two different times.

Groups of 10 mice were housed in large microisolator systems containing Care-Fresh bedding. They were given 2-3 nestlers and small hiding/climbing articles such as a nesting box (fig. 1), a stainless steel cylinder [4" x 2.5"] (fig. 2), a transparent hamster log [A.J. Buck or Otto Environmental], a play cube or a Sleep n'Play hide-away [Otto Environmental]. Small cat/bird toys which can withstand cage wash temperatures (180°F final rinse) were also used for enrichment. One of the following cat/bird toys was placed in each cage: a spinner ball or lattice ball, a jingle bell roller (fig. 2), a geometrix ball, or 2-3 poker chips [U.S.

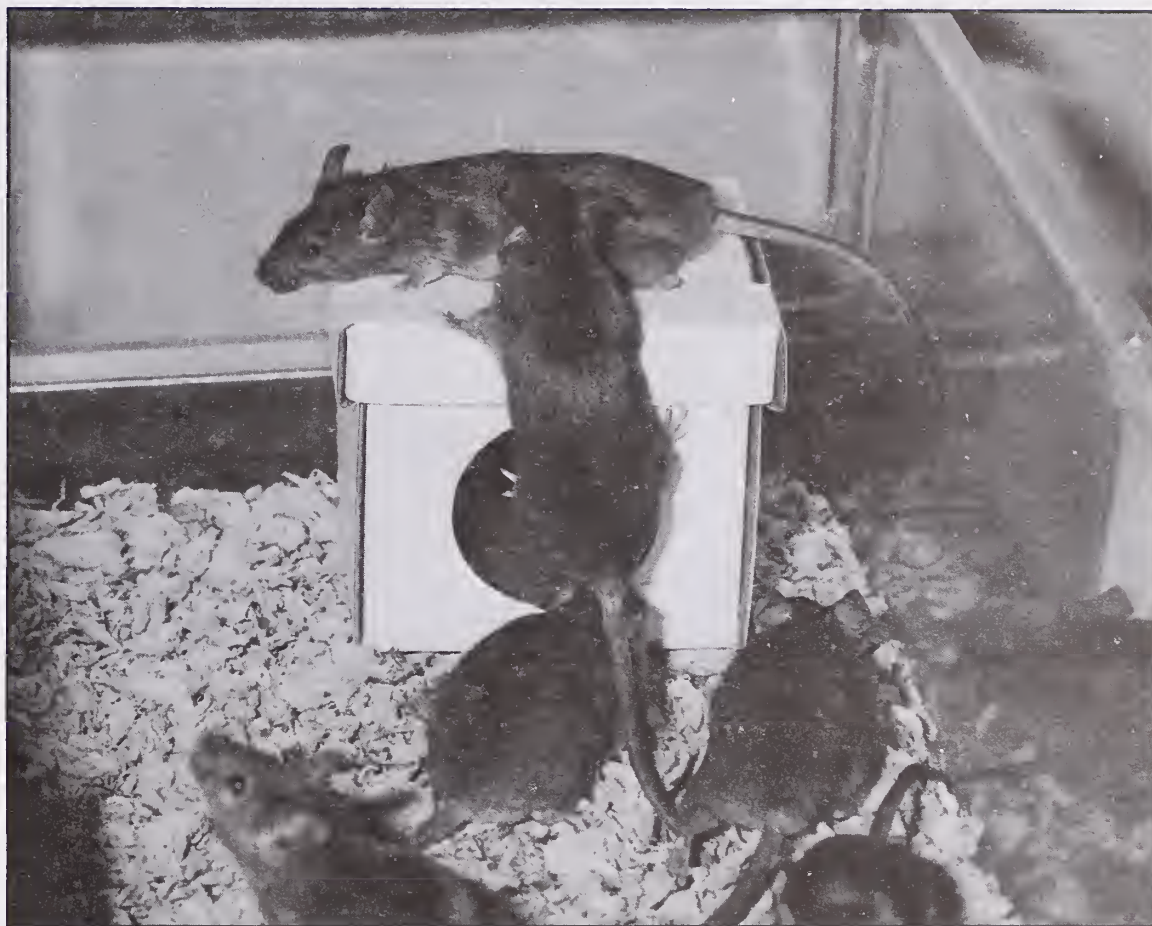


Figure 1



Figure 2

Card Playing Co.]. The toys were replaced every other week; at no time was the same toy used for more than 2 weeks. Toys were considered used if the balls had bedding stuffed into the holes or if the other toys had teeth marks around the edges or had pieces chewed out (fig 2). The mice were often seen carrying the chips and rollers and rolling the balls around the cage (fig. 3).

The extent of the barbering behavior was decreased by the enrichment program. If the environment was enriched as soon as the mice were gang-caged, barbering was kept at a minimum—that is, only the smallest mice (less than 2 percent of the total number of animals) were barbered. If the enrichment was delayed for a month or more, barbering occurred to about 23 percent of the mice. Barbering in control mice (no enrichment) was about 60 percent. In these experiments, enrichment was most effective in reducing barbering when it was started when first housing the mice in group cages (fig. 4).



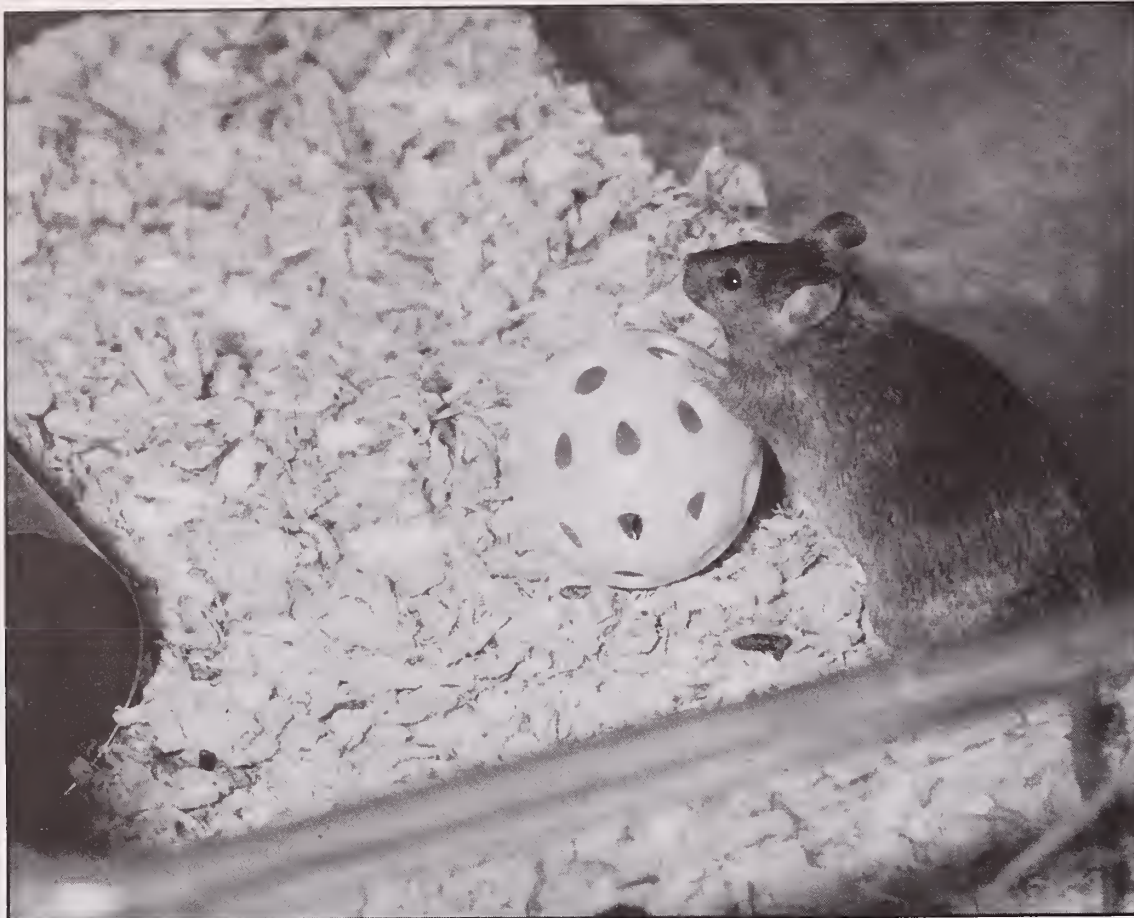


Figure 3

## Sources for Mouse Enrichment Supplies (Item with catalog number)

### Nesting boxes-MB 00

**KLASS**  
4960 Almaden Expressway  
Suite 233  
San Jose, CA 95118  
408-266-1235

### Nestlers-NES 3600

**Ancare Corp.**  
2647 Grand Avenue  
P.O. Box 814  
Beflmore, NY 11710  
1-800-645-6379

### Toys

Lattice Balls-#337790  
Spinner BaRs-#394112  
Jingle Bell Roller-#2208  
Bx Geometrix Balls-#341121  
Hand Helds (bird toy)-#399152  
Hamster Logs-#8677

**A. J. Buck & Sons, Inc.**  
11407 Cronhill Drive  
Owings Mills, MD 21117  
1-800-638-8672

### Poker Chips

**U.S. Card Playing Co.**  
Available in variety and hobby  
stores

### Large variety of small hiding places suitable for mouse cages

Discovery Play-Cube-SAM 85  
Sleep n'Play Hide-Away-SAM 14  
Hamster Log-61336

**Otto Environmental**  
6914 N. 124th St.  
Milwaukee, WI 53224  
1-800-484-5363 Ext. 6886 ■

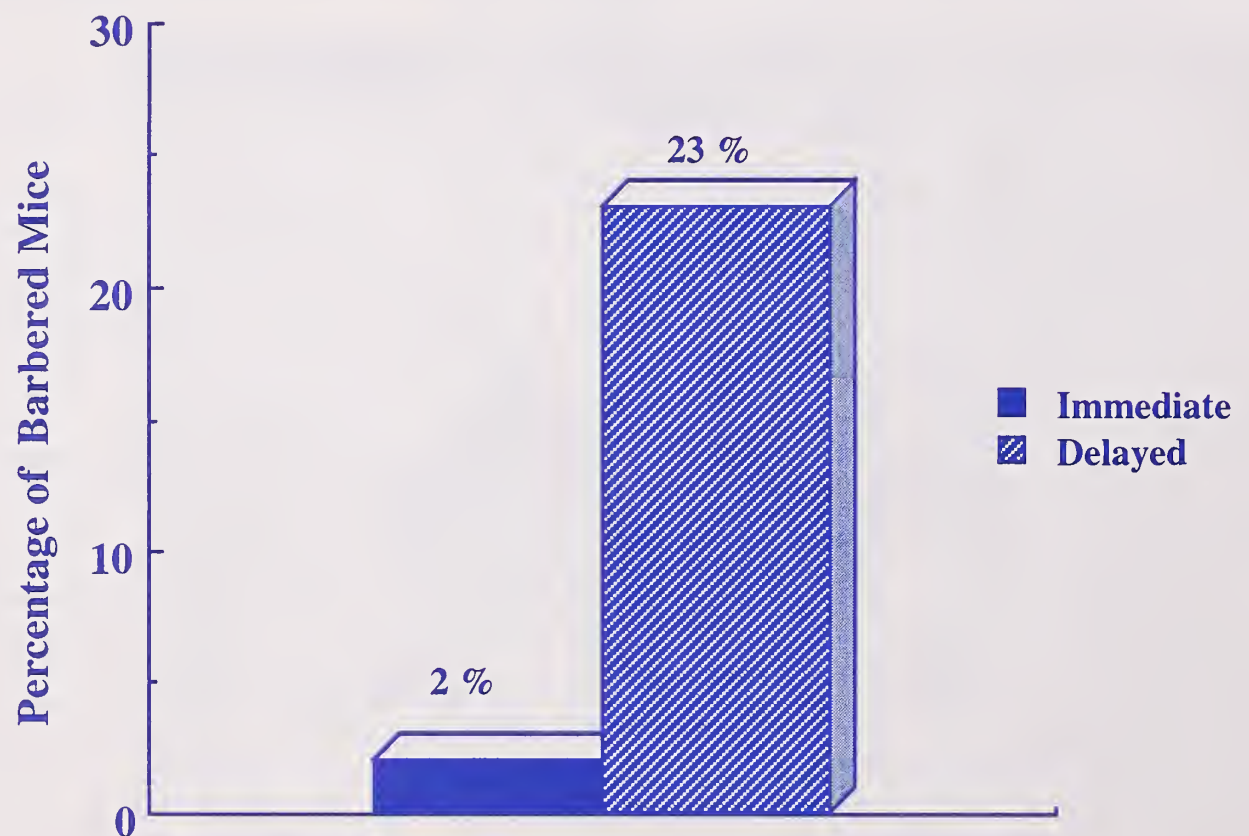


Figure 4 - Barbering is significantly reduced when environmental enrichment is implemented early.



# Communication by Keyword: Sharing Information About Alternatives to Animal Testing

by  
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Allen has stated that "[t]he publication of negative scientific results, use of alternatives terminology when abstracting journal articles or assigning keywords, and standardization of indexing terms for alternatives are several areas that would greatly benefit the search for alternatives." (1).

Additionally, Ungar has indicated that "the necessity to limit indexing terms to a manageable quantity places constraints on the number of facets that can be expressed. In our experience, when searching on the major databases, it is not really possible to identify with confidence publications that describe methodological advances [in the alternatives area]." (2).

Snow concurs by stating that "due to the 'principle of specificity in indexing, failure to include pertinent test names or methods terms, along with general keywords/codes illustrated here, may miss references to specific alternatives tests." (3).

We lack a well-defined vocabulary of terms for alternatives to animal testing, and we do not consistently incorporate methodology terms into keywording structures for archiving this material. Hence, our ability to accurately communicate our findings about these methods to others through journal articles, databases, or more recently, websites, is severely hampered.

Historically, development of *in vitro* and other alternative methods to animal testing has relied heavily upon the disciplines of toxicology, pharmacology, biochemistry, immunology, physiology, and genetics. As a result, the descriptive nomenclature of this field is a diverse collection of words derived from multiple sources. And most public and private databases of information about alternatives to animal testing have been indexed by different systems. So, in addition to the fact that the words used as descriptors for the same concept may not be the same, the concepts chosen as the basis for indexing strategies may also differ.

In an effort to clarify and resolve some of this ambiguity, the European Center for Validation of Animal Methods recently sponsored a workshop for information providers in which a decision was made to construct a thesaurus of terms for use in describing alternatives to animal testing (4). This event marks the first organized attempt to develop a well-defined nomenclature for research methods that do not use animals. What is also needed is more common use of these words as indexing terms.

With the advent of the information age, many new methods of information storage, retrieval, and dissemination are currently in use or under development. Keywords (descriptors) remain a very prevalent form of indexing. Authors submitting manuscripts to many major scientific journals are typically requested to furnish from 3 to 10 keywords describing the research they wish to publish. These keywords are then used to index the article in the publisher's archives. Larger databases of information (e.g., MEDLINE or TOXLINE) may also index the article. But, they may choose to index the

article by an entirely different set of keywords depending upon the keywording strategy they employ.

In view of the prevalence, in the area of alternatives to animal testing, of research involving methods development, keywords describing methods would seem an integral part of any keywording structure used to index the results from this research. Many indexing strategies, however, do not emphasize the incorporation of terms describing methods. The National Library of Medicine, which operates MEDLINE and TOXLINE, considers terms describing methods as part of a secondary, not primary, tier of concepts to be indexed (5). Many, if not most, scientific journals requesting keywords from authors do not specify which concepts are to be keyworded.

Recently, a keywording scheme which incorporates words describing methods for articles about alternatives to animal testing was proposed (6). The strategy, itself, is relatively simple, incorporating words for *toxic insult studied*, *method used*, and *endpoint measured*.

*Toxic insult studied* is defined in a classic toxicological sense. With regard to alternatives to skin irritation testing, examples of keywords are *irritation*, *corrosion*, and *phototoxicity*.

*Method used* refers to the assay used to measure result. Examples include agarose diffusion assay, chorioallantoic membrane assay, Eytex assay, and kenacid blue assay.

*Endpoint measured* refers to actual process/activity measured. General cellular processes such as cell adherence, cell division, and protein synthesis can be included as well as more specific measures such as acid phosphatase activity, arachidonic acid release, and prostaglandin E<sub>2</sub> activity.

An example of application of this keywording strategy to a journal article is as follows.

Development of *in vitro* methods for use of human skin cell cultures for skin and eye irritancy assessments of aqueous incompatible materials. Mary A. Perkins, Deirdre A. Roberts, and Rosemarie Osborne. Human & Environmental Safety Division, The Procter & Gamble Company, Cincinnati, Ohio.

In order to address the pressing need to reduce or replace the use of rabbits for prediction of human skin and eye irritancy potential, cultured human skin cells were evaluated. Currently available submerged cultures have limitations due to the aqueous buffered medium used for test material dilution. We have previously shown that these models are limited in their ability to predict irritancy potential for aqueous incompatible materials, product formulations and acids/bases. To overcome these limitations, we developed a unique protocol utilizing Marrow-Tech Skin<sup>2</sup> cultures for topical application of aqueous incompatible test materials as an alternative model for skin and eye irritancy testing. Methods were developed for topical application of and removal of neat test materials as an alternative model for skin and eye irritancy testing. Methods were developed for topical application of



and removal of neat test materials for acute damage evaluations. Materials tested in this model included a wide array of product formulation types, including liquids, gels, creams, foams, pastes, solids, powders and granulars. A battery of endpoints (MTT cell viability assay, lactate dehydrogenase enzyme release, and inflammatory mediator-PGE<sub>2</sub> release) were measured, representing final common pathways of skin or eye response to diverse test materials. Preliminary results indicate that, with this unique protocol, *in vitro* skin or eye irritancy assessments correlate well with the *in vivo* irritancy of these materials (7).

Keywords: Irritation/Skin/MTT/Lactate Dehydrogenase/PGE<sub>2</sub>

This simple keywording strategy was applied to a small collection of articles describing alternatives to skin irritation testing in animals. The words thus collected were compared to the current medical subject headings (MeSH) of the National Library of Medicine (NLM) (see Keywords for alternatives to skin irritation testing and related MeSH at end of article). Many of the keywords about skin irritation alternatives collected by this project have comparable, if not exact, matching terms in MeSH. There are words that are not matched in the MeSH. This doesn't mean that NLM databases can't be searched using all the keywords collected by this project. What should be considered is that use of the MeSH to find keywords describing methods about alternatives to skin irritation testing in animals may not prove fruitful in some instances (for example, words describing models—Skin, Emerged Dermal Equivalent, ZK1000).

The bibliographic database that served as the source of keywords for this project was composed of 94 records of abstracts obtained from articles published in the following scientific journals.

- Alternatives to Animal Testing and Experimentation (AATEX) 1992
- Alternativen Zu Tierexperimenten 1987
- Alternatives to Laboratory Animals (ATLA) 1991, 1992
- Journal of Toxicology - Clinical Toxicology 1992
- Free Radical Research Communications 1992
- In Vitro Cell and Developmental Biology 1990, 1992
- In Vitro Toxicology 1987, 1991, 1992, 1993, 1994, 1996
- Journal of Investigative Dermatology 1992, 1993, 1994
- Journal of Toxicology-Cutaneous & Ocular Toxicology 1992, 1993
- Mutation Research 1992
- Toxicology in Vitro 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1996
- Toxicology and Applied Pharmacology 1983
- The Toxicologist 1991, 1992, 1995
- Wounds 1992

Abstracts from these journals were indexed using Pro-Cite bibliographic software (Research Information Systems, Carlsbad, CA). Data were entered into numerous fields (for example, author name, title of article, journal name, abstract, and keywords). "Authority" lists were generated containing frequently used citation elements such as journal abbreviations or keywords. These lists were then consulted during data entry. Although, this work might be considered limited because only 94 abstracts were surveyed, the keywords collected represent a good sample of the nomenclature in use. And it is a good example of how effectively the keywording

strategy described can be used to collect words pertinent to alternative methods for animal testing.

Keywording an article can provide useful information to people searching for alternatives. Retrieval of an article describing an alternative method to animal experimentation can be greatly enhanced by using well-defined keywords which describe the basic components of the study such as *toxic insult studied, method used, endpoint measured*.

This suggested keywording scheme is not meant to replace indexing strategies already in place but simply to augment those structures with elements describing methodology. Just as changes in shading and color often add depth to an artistic rendering, additional keywords can add valuable descriptive detail to the basic framework of words chosen.

In summary, both better definition of the nomenclature used to describe alternative methods to animal testing and more frequent use of these words as keywords will enhance our ability to store, retrieve, and disseminate information about these new research techniques.

*Note: Dr. Huggins would like to thank David Anderson and Krys Bottrill for their helpful suggestions regarding this work. She can be reached by phone: (609) 462-8159, fax (609) 716-8030, or e-mail: djhug@ix.netcom.com for further information.*

## References

1. Allen, T. (1996). On-Line Databases and the World Wide Web: What is Available, What is Missing. Paper presented at the 2nd World Congress on Alternatives to Animal Testing. Utrecht, The Netherlands, October 20-24.
2. Ungar, K. (1993). INVITTOX: An Attempt to Solve Some Information Problems of In Vitro Toxicology. *Humane Innovations and Alternatives* 7: 540-543.
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4. Kamp, Margot D. O. van der [et al.] (1996). Current status and future developments of databases on alternative methods; the report and recommendations of ECVAM Workshop 15. Submitted for publication to: Alternatives to Laboratory Animals: ATLA. [Workshop held in Neubiberg, Germany, 12-15 September.]
5. Charen, T. (1983). Indexing Operation, in *Medlars Indexing Manual - Part 2*. National Library of Medicine: Bethesda, MD, section 4, pp. 1-7.
6. Huggins, J. (1994). Communication by Keyword: Enhanced Distribution and Retrieval of Information About Alternatives to Animal Testing. *In Vitro Toxicol.* 7(4), 369-375.
7. Perkins, M. A., Roberts, D. A., and Osborne, R. (1992). Development of in vitro methods for use of human skin cell cultures for skin and eye irritancy assessments of aqueous incompatible materials. *J. Invest. Dermatol.* 2, 638.



## Keywords for Alternatives to Skin Irritation Testing and Related MeSH Terms

<u>Keyword</u>	<u>MeSH Term</u>
<b>Toxic Insult(s)</b>	
Corrosion	Corrosion
Irritation	Irritant +
Phototoxicity	Phototoxicity
<b>Method(s)</b>	
<i>General</i>	
Agarose Diffusion Assay	Gel Diffusion Tests
Alcian Blue Assay	Alcian Blue
Aniline Blue Assay	Aniline Blue
Catalase	Catalase
Cell Count	Cell Count
Chorioallantoic Membrane Assay	**
<i>Cell/Organ Culture</i>	
3T3 Mouse Embryo Fibroblasts	3T3 cells
C3H Mouse Embryo Fibroblasts	Mice, inbred C3H
Fibroblasts	Fibroblasts +
HaCAT Spontaneously Immortalized	
Human Keratinocyte Cell Line	**
Keratinocyte	Keratinocytes
L929 Mouse Fibroblasts Cells	**
Methyl Cellulose Culture	Methylcellulose +
Normal Human Epidermal	
Keratinocyte	**
Human	Human [all clinical and experimental studies]
Mouse	Mice +
Neonate	Infant, newborn +
Rat	Rats, inbred strains +
Rabbit	Rabbits
Abdomen	Abdomen +
Breast	Breast +
<b>Foreskin</b>	**
Epidermal	Epidermis +
Epidermal Slice	**
Gingiva	Gingiva
Hair Follicle	Epidermis +, hair follicle
Melanocyte	Melanocytes
Sublingual Mucosa	Sublingual Region
Skin	Skin +
Organ Culture	Organ Culture
<i>Models</i>	
Dermal Graft	Grafting
Dermal Model	**
Emerged Dermal Equivalent	**
Isolated Perfused Pig Skin Flap	**
Living Dermal Equivalent	**
Living Dermal Model-Mast Cell	**
Living Skin Equivalent	**
Skin <sup>2</sup> Model	**
Testskin	**
ZK1000 Model	**

*Note: General MeSH terms which may be helpful are "skin substitutes" or "artificial skin".*

*Keyword and Mesh terms continued...*

<i>Fluorescent Probes</i>	
Calcein-Acetoxymethyl Ester	**
Carboxyfluorescein	Carboxyfluorescein
Carboxyfluorescein Diacetate	
Acetoxymethyl Ester	Fluoresceins
Fluorescein Diacetate	Fluorescein Diacetate
Fura-2AM	Fura-2AM
<b>Endpoint(s)</b>	
<i>General</i>	
Cell Adherence	Cell Adhesion
Cell Detachment	**
Cell Division	Cell Division
Cell Proliferation	**
Cytotoxicity	Cytotoxicity; Cytotoxicity tests, immunologic +
Epithelialization	**
Inflammation	Inflammation +
<i>Specific</i>	
12-Hydroxyeicosatetranoic acid	Hydroxyeicosatetranoic acids

\*\* Keywords for which exact or closely related terms in MeSH were not found. ■

## New Bibliographies Available From AWIC

Be sure to visit the AWIC website at  
<http://www.nal.usda.gov/awic>

- **Information Resources for Adjuvants and Antibody Production: Comparisons and Alternative Technologies** - AWIC Resource Series No. 3
- **Housing, Husbandry, and Welfare of Rodents** (January 1990-June 1997) - QB 97-04
- **Housing, Husbandry, and Welfare of Dogs** (January 1993-June 1997) - QB 97-08
- **Housing, Husbandry, and Welfare of Sheep and Goats** - SRB 97-07
- **Zoonotic Diseases** (January 1993-July 1997) - SRB 97-04

Other Publications Available Through AWIC

- **APHIS List of Registered Carriers and Intermediate Handlers-1997**
- **APHIS List of Licensed Dealers-1997**
- **APHIS List of Licensed Exhibitors and Registered Exhibitors-1997**
- **APHIS List of Registered Research Facilities-1997**
- **APHIS Animal Welfare Enforcement Report for 1996**



# APHIS-Animal Care Update

## The Horse Protection Act

**T**he Animal and Plant Health Inspection Service (APHIS) of the U.S. Department of Agriculture (USDA) enforces the Horse Protection Act (HPA) through its Animal Care unit. The HPA is a Federal law that prohibits horses subjected to a process called soring from participating in exhibitions, sales, shows, or auctions. The Act also prohibits persons from transporting sored horses to compete in shows.

Soring, a painful practice used to accentuate a horse's gait—is accomplished by irritating the forelegs through the injection or application of chemicals or mechanical irritants. When it walks, a sored horse responds by quickly lifting its front legs to relieve the pain. Sored horses sometimes develop permanent scars.

In the 1950's, owners and trainers wanting to improve their horses' chances to win at shows used soring. Because sored horses gained a competitive edge, the practice became popular and widespread in the 1960's. Public outcry over the inhumane practice led to the passage of the Horse Protection Act in 1970 and its amendment in 1976. The HPA ensures that the horses will not be subjected to the cruel practice of soring and that responsible horse owners and trainers will not suffer unfair competition from those who sore their horses.

Although the HPA covers all horse breeds, Tennessee Walking horses and other high-stepping breeds are the most frequent victims of soring. Responsibility for preventing sored horses rests with owners, trainers, riders, sellers, and managers of the show or sale. Most horse-industry organiza-

tions and associations strictly prohibit members from soring their animals.

**Designated Qualified Persons:** To facilitate enforcement of the HPA, APHIS has established the Designated Qualified Person (DQP) program. DQP's are trained and licensed by a USDA-certified horse industry organization or association to detect sored horses. DQP's are APHIS-accredited veterinarians with equine experience, or they are farriers, horse trainers, or other knowledgeable equestrians. DQP's are hired by the managing directors or administrators of a show or sale to ensure that sored horses are not allowed in the ring.

DQP's are responsible for barring from shows horses that do not meet Federal regulations under the HPA. Without DQP's, show management assumes full legal responsibility for disqualifying sored horses before awarding prizes and before customers view horses at sales or auctions.

**Monitoring DQP's and enforcing the HPA:** Horse organizations can revoke the license of DQP's if their inspections do not meet HPA standards. The APHIS inspection team is not present at every show but conducts unannounced inspections. APHIS can use information supplied by private citizens to prosecute violators.

The APHIS inspection team includes Animal Care veterinarians and Regulatory Enforcement investigators. The veterinarians observe horses during a show and can examine any horse for signs of soring or violation of the regulations.

**Signs of Soring:** APHIS inspection team members look for abnormal sensitivity or insensitivity in horses they suspect of being sored. The horses may exhibit swelling, tenderness, abrasions, bleeding, or oozing of blood or serum. APHIS pays particular attention to the area of the coronet band—the area above the hoof—to the front and rear pasterns, and to the bulb of the heel—favorite places for chemical soring. They also look for training aids that are too heavy and hard. Heavy, rigid devices banging on the pastern during repeated workouts can sore sensitive horses.

**Penalties:** Criminal or civil charges can be brought against violators. If convicted, violators can spend up to 2 years in prison, receive penalties of up to \$5,000, and be disqualified for 1 or more years from the right to show, exhibit, or sell horses through auction sales. Trainers can be disqualified for life. Industry and certified organizations impose their own sanctions in addition to Federal proceedings. ■

## Strategic-Direction Update

AC's strategic-direction efforts continue to move forward on several fronts.

- The program's risk-based inspection system began a 3-month field test in early June. This system will help us concentrate our efforts on facilities not in compliance with the AWA. AC will evaluate test results to assess the system's effectiveness, with full implementation scheduled for early 1998.
- AC's new computer system is targeted for completion in December 1997. The system will provide industry with easy-to-read, comprehensive, computer-generated inspection reports. Several facilities may have a chance to experience this new format when it is field-tested later this summer.
- As part of the new strategic direction for horse protection, this summer inspectors will begin auditing the records of selected horse industry organizations to assess compliance with the Horse Protection Act. These are the first extensive audits on the horse industry.

## Tuberculosis (TB) and Elephants

To protect the health of elephants exhibited in America, USDA plans to publish guidelines for routine TB screening of these animals. These guidelines would become part of the "adequate veterinary care" standard under the AWA and would specify acceptable testing methods, minimum treatment regimens, and restrictions on travel for elephants that test positive.



# APHIS- Animal Care Update

## USDA OUTLAWS DOG TETHERING AS A MEANS OF HOUSING

WASHINGTON, Aug. 12, 1997 – The U.S. Department of Agriculture amended the Animal Welfare Act regulations today, disallowing tethering as a means of primary enclosure for dogs.

"We don't believe putting a dog on a tether provides adequate housing under any circumstances," said Michael V. Dunn, USDA's assistant secretary for marketing and regulatory programs.

"This change in regulations reflects concerns voiced by the public and affected industries during a series of public meetings we held in 1996," Dunn said. "As a result of that input, persons now using tethers as 'housing' will be in violation of the Animal Welfare Act."

For further information, contact Stephen Smith, staff animal health technician, AC, APHIS, Suite 6D02, 4700 River Road Unit 84, Riverdale, Md. 20737-1234, (301) 734-7833, or e-mail [snsmith@aphis.usda.gov](mailto:snsmith@aphis.usda.gov)

This action is scheduled for publication in the Aug. 13 Federal Register and becomes effective on Sept. 12. ■

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### IACUC: Expedited Review of Animal Use Protocols

*Richard L. Crawford, D.V.M.*  
*U.S. Department of Agriculture, Animal Welfare  
Information Center*

Under the Animal Welfare Act the principal investigator is required to provide the Institutional Animal Care and Use Committee (IACUC) with a written description of all activities that involve the care and use of animals that are covered by the regulations. Each member of the committee is to be provided with a copy of the protocol to be reviewed. Some of the protocols may, by nature of the pain or distress to which the animals will be subjected, require a full committee review. Also, any member of the committee may obtain, upon request, a full committee review of the protocol.

If a full committee review is not apparently necessary and a full committee review is not requested, then an expedited review of the protocol may be made. For an expedited review the committee chairman is to designate at least one member of the IACUC who is qualified to conduct the review to review the protocol. This designated individual(s) is to review the protocol and has the authority to: (1) approve the protocol, (2) require modifications to the protocol, or (3) request a full committee review of the protocol (Section 2.32(d)(2)). If a full committee review is requested, approval may be granted only after review, at a convened meeting of a quorum of the IACUC, and with approval vote of a majority of the quorum present. No member of the IACUC may participate in a protocol review or approval, or be part of a quorum, if that member has a conflicting interest in the protocol, except to provide requested information to the IACUC. The IACUC member making the expedited review does not have the authority to disapprove a protocol. Disapproval, or suspension, of a protocol may only be done by a majority vote of a quorum at a convened meeting of the IACUC. Consultants may also be used for reviewing complex issues in protocols but may not approve or disapprove the protocol and may not vote with the IACUC unless they are a member of the IACUC. If you have any questions about expedited protocol reviews, you should contact your Animal Care Regional Office.



## Legislation cont'd from p.1

'(b)(1) The Secretary, in accordance with this subsection, shall allow a herd of free roaming horses in the seashore. '(2) Within 180 days after enactment of this subsection, the Secretary shall enter into an agreement with the Foundation for Shackleford Horses (a nonprofit corporation established under the laws of the State of North Carolina) to provide for management of free roaming horses in the seashore. The agreement shall – '(A) provide for cost-effective management of the horses; and '(B) allow the Foundation to adopt any of those horses that the Secretary removes from the seashore. '(3)(A) The Secretary shall accommodate the historic population level of the free roaming horse herd in the seashore, which shall be considered to be not less than 100 horses and not more than 110 horses. '(B) The Secretary may not remove, or assist in or permit the removal of, any free roaming horses from Federal lands within the boundaries of the seashore unless – '(i) the number of free roaming horses in the seashore exceeds 110; '(ii) there is an emergency or a need to protect public health and safety, as defined in the agreement under paragraph (2); or '(iii) there is concern for the persistence and viability of the horse population that is cited in the most recent findings of annual monitoring of the horses under paragraph (4). '(4) The Secretary shall annually monitor, assess, and make available to the public findings regarding the population structure and health of the free roaming horses in the national seashore. '(5) Nothing in this subsection shall be construed as creating liability for the United States for any damages caused by the free roaming horses to property located inside or outside the boundaries of the seashore."

- **H.R. 952 To clarify the mission, purposes, and authorized uses of the National Wildlife Refuge System, and to establish requirements for administration and conservation planning for that system.**

Introduced March 5, 1997, by George Miller (D-California) and referred to the Committee on Resources. This act may be cited as the "Theodore Roosevelt Wildlife Legacy Act of 1997."

As introduced, this bill "[d]eclares the mission of the National Wildlife Refuge System to be to preserve a network of lands and waters for the conservation and management of U.S. fish, wildlife, and plants for present and future generations.

The act establishes as the System's priority public uses: (1) wildlife observation and photography; (2) hunting; (3) fishing; and (4) environmental education and interpretation.

It directs the Secretary of the Interior, in administering the System, to: (1) resolve any conflict between the primary purpose of a National Wildlife Refuge and any purpose of the System in a manner that first fulfills the primary purpose of the refuge; (2) plan, propose, and direct System expansion to accomplish the mission and purposes of the System and of each refuge and to contribute to the conservation of U.S. ecosystems; and (3) inventory and monitor the status and trends of fish, wildlife, and plants in each refuge.

Prohibits the Secretary, effective three years after enactment of this Act, from initiating or permitting a new use of a refuge or an expansion of an existing allowed use unless such use is compatible with the primary purposes of the refuge and the mission and purposes of the System.

Directs the Secretary to: (1) propose within 15 years and revise every 15 years comprehensive conservation plans for each refuge in the System, except refuges in Alaska; (2) develop and implement a process to ensure an opportunity

for active public involvement in the preparation and revision of such plans; (3) manage each refuge in a manner consistent with its conservation plan; and (4) prepare a conservation plan for a refuge established after enactment of this Act not later than two years after the Secretary determines that sufficient land has been acquired to warrant comprehensive planning."

- **H.R. 1176 A bill to end the use of steel jaw leghold traps on animals in the United States.**

Introduced March 20, 1997, by Nita Lowey (D-New York) and referred to the Committee on Commerce and the Committees on Ways and Means, International Relations, and the Judiciary.

"Prohibits the import, export, or shipment in interstate commerce of steel jaw leghold traps and of articles of fur derived from animals trapped in such traps.

Prescribes criminal penalties for violations of this Act.

Directs the Secretary of the Interior to reward non-government informers for information leading to a conviction under this Act. Empowers enforcement officials to detain, search, and seize suspected merchandise or documents and to make arrests with and without warrants. Subjects seized merchandise to forfeiture."

- **H.R. 1209 To provide for the defense of the environment, and for other purposes.**

Introduced March 20, 1997, by Henry Waxman (D-California) and referred to the Committee on Rules and the Committee on the Judiciary. Referred to the Subcommittee on Commercial and Administrative Law on March 31, 1997. This act may be cited as the "Defense of the Environment Act of 1997."

According to the House Digest, this act "[r]equires any report of a congressional committee or committee of conference accompanying a public bill or joint resolution that includes any provision that reduces environmental protection to contain: (1) an identification and description of the provision; (2) an assessment of the extent of such reduction; (3) a description of any actions to avoid such reduction; and (4) any statement received from the Comptroller General, upon request of the committee or a majority of either the minority or majority members of the committee, assessing the reduction.

Deems a provision to reduce environmental protection if it may: (1) allow increased pollution; (2) adversely affect the environmental quality of public lands or diminish protection of species that may be endangered; (3) increase children's exposure to environmental contaminants and other environmental risks; or (4) have the effect of shielding environmental law violators or limiting judicial review of agency action under authority of any environmental law.

Provides for consultation and assistance of the Comptroller General at the request of any committee. Requires the Director of the Office of Management and Budget to ensure that, before proposing or promulgating any major rule, the responsible agency has conducted an analysis of any provision that reduces environmental protection.

Makes out of order in the House of Representatives and the Senate the consideration of any reported bill or joint resolution, or conference report, unless the committee has complied with the identification and assessment provisions of this Act. Makes any rule waiving these provisions out of order in the House.

Amends the Rules of the House of Representatives with respect to the consideration and striking of provisions reduc-



ing environmental protection within the meaning of this Act. Provides Senate procedures for the striking of such provisions."

- **H. R. 1257 To amend the Internal Revenue Code of 1986 to establish and provide a checkoff for a Biomedical Research Fund, and for other purposes.**

Introduced April 9, 1997, by Michael Forbes (R-New York) and referred to the Committee on Ways and Means, and in addition to the Committee on Commerce.

According to the House Digest, this bill "[a]mends the Internal Revenue Code to allow every individual (other than a nonresident alien) whose adjusted income tax liability for the taxable year is \$5 or more, to designate that \$5 be paid over to the Biomedical Research Fund.

It also establishes in the Treasury the Biomedical Research Fund."

- **H.R. 1719 To protect and enhance sportsmen's opportunities and enhance wildlife conservation.**

Introduced May 22, 1997, by Randy Cunningham (R-California) and referred to the Committee on Resources. Executive comment requested from the Secretary of the Interior on May 30. This act may be cited as the "Sportsmen's Bill of Rights Act."

"Requires Federal public land and water to be open to access and use for fishing and hunting except as limited by: (1) the State involved; or (2) the responsible Federal agency for reasons of national security, public safety, or specific authorization. Allows such land to be closed only during the period in which the reasons for such closure exist.

Amends the Federal Aid in Wildlife Restoration Act to authorize the Secretary of the Interior (Secretary) to cooperate with the Secretary of the Interior of Puerto Rico (currently the Secretary of Agriculture of Puerto Rico) in wildlife-restoration projects. Prohibits funds made available to the Secretary for expenses in the administration and execution of wildlife-restoration projects under such Act and the Federal Aid in Fish Restoration Act from being used as a supplement to decreased funding for any other expense of the Secretary.

Prohibits a Federal agency's action that may significantly diminish opportunities or access to engage in fishing or hunting on Federal public land or water until the agency prepares a detailed statement evaluating the action's effect on fishing and hunting. Provides for judicial review of such action.

Provides for intervention by an interested person in a civil action relating to the use of Federal public land or water for fishing or hunting.

Provides standing to seek declaratory or injunctive relief regarding the implementation of this Act for an individual licensed to engage in fishing or hunting, or an organization representing the interests of such individuals."

Related bill S.751

- **H.R. 1787 To assist in the conservation of Asian elephants by supporting and providing financial resources for the conservation programs of nations within range of Asian elephants and projects of persons with demonstrated expertise in the conservation of Asian elephants.**

Introduced on June 4, 1997, by James Saxton (R-New Jersey) and referred to the Committee on Resources, and the Committee on International Relations. Executive comment was requested from the Secretary of the Interior and

the Agency for International Development on June 16. Subcommittee on Fisheries Conservation, Wildlife, and Oceans held hearings on July 31. This act may be cited as the "Asian Elephant Conservation Act of 1997."

The purposes of this act are "to perpetuate healthy populations of Asian elephants, assist in the conservation and protection of Asian elephants by supporting the conservation programs of Asian elephant range states and the CITES Secretariat, and to provide financial resources for those programs." In addition, the act establishes within the U.S. Treasury an "Asian Elephant Conservation Fund." The fund will consist of donations and Congressional appropriations. For each of fiscal years 1998-2002, the Congress appropriates \$5 million to the Fund that may remain available until spent.

- **H.R. 1856 To amend the Fish and Wildlife Act of 1956 to direct the Secretary of the Interior to conduct a volunteer pilot project at one national wildlife refuge in each United States Fish and Wildlife Service region, and for other purposes.**

Introduced on June 10, 1997, by H. James Saxton (R-New Jersey) and referred to the Committee on Resources. Referred to the Subcommittee on Fisheries Conservation, Wildlife, and Oceans. An amended version was forwarded to the full committee by voice vote on July 31. This act may be cited as the "Volunteers for Wildlife Act of 1997."

**"SEC. 2. VOLUNTEERS IN WILDLIFE.**

Section 7(c) of the Fish and Wildlife Act of 1956 (16 U.S.C. 742f(c)) is amended by adding at the end the following:

'(7)(A) Subject to the availability of appropriations, the Secretary of the Interior shall conduct a volunteer pilot project at one national wildlife refuge in each United States Fish and Wildlife Service region, under which the Secretary shall employ a volunteer coordinator for the refuge.

'(B) The Secretary may— '(i) establish an account for each national wildlife refuge at which a pilot project is conducted under this paragraph; '(ii) deposit into the account entrance fees, donations, and user fees generated at the national wildlife refuge at which the project is conducted; and '(iii) without further appropriation, expend amounts in the account for materials, training, and other uses to enhance volunteer activities at the refuge.

'(C) There are authorized to be appropriated \$150,000 for each pilot project authorized under this paragraph for each of the fiscal years 1998, 1999, 2000, 2001, 2002, and 2003.

'(8) The Secretary shall appoint a national volunteer coordinator for the National Wildlife Refuge System."

- **S. 850 To amend the Packers and Stockyards Act of 1921 to make it unlawful for any stockyard owner, market agency, or dealer to transfer or market nonambulatory livestock, and for other purposes.**

Introduced June 9, 1997, by Daniel Akaka (D-Hawaii) and referred to the Committee on Agriculture. This act may be cited as the "Downed Animal Protection Act."

"Amends the Packers and Stockyards Act, 1921 to make it unlawful for any stockyard owner, market agency, or dealer to buy, sell, give, receive, transfer, market, hold, or drag any nonambulatory livestock unless such livestock has been humanely euthanized."

Related bill H.R. 453



- **S. 861 To amend the Federal Property and Administrative Services Act of 1949 to authorize donation of Federal law enforcement canines that are no longer needed for official purposes to individuals with experience handling canines in the performance of law enforcement duties.**

Introduced June 9, 1997, by James Inhofe (R-Ok- lahoma) and referred to the Committee on Governmental Affairs. Reported back to the Senate on June 26 and placed on Senate Legislative Calendar No.101.

**"SECTION 1. AUTHORIZATION TO DONATE SURPLUS LAW ENFORCEMENT CANINES TO THEIR HANDLERS.**

Section 203 of the Federal Property and Administrative Services Act of 1949 (40 U.S.C. 484) is amended by adding at the end the following: '(r) The head of a Federal agency having control of a canine that has been used by a Federal agency in the performance of law enforcement duties and that has been determined by the agency to be no longer needed for official purposes may donate the canine to an individual who has experience handling canines in the performance of those duties.'

- **S. 995 To amend title 18, United States Code, to prohibit certain interstate conduct relating to exotic animals.**

Introduced July 8, 1997, by Frank Lautenberg (D-New Jersey) and referred to the Committee on Judiciary. This act may be cited as the "Captive Exotic Animal Protection Act of 1997."

**"SEC. 2. TRANSPORT OR POSSESSION OF EXOTIC ANIMALS FOR PURPOSES OF KILLING OR INJURING THEM.**

(a) **IN GENERAL-** Chapter 3 of title 18, United States Code, is amended by adding at the end the following:

'Sec. 48. Exotic animals

'(a) **PROHIBITION-** Whoever, in or affecting interstate or foreign commerce, knowingly transfers, transports, or possesses a confined exotic animal, for the purposes of allowing the killing or injuring of that animal for entertainment or for the collection of a trophy, shall be fined under this title, imprisoned not more than 1 year, or both.

'(b) **DEFINITIONS-** In this section—

'(1) the term 'confined exotic animal' means a mammal of a species not historically indigenous to the United States, that has been held in captivity for the shorter of— '(A) the greater part of the life of the animal; or '(B) a period of 1 year; whether or not the defendant knew the length of the captivity; and '(2) the term 'captivity' does not include any period during which an animal— '(A) lives as it would in the wild, surviving primarily by foraging for naturally occurring food, roaming at will over an open area of not less than 1,000 acres; and '(B) has the opportunity to avoid hunters.'

Related bill H.R. 1202

*To find out the status of these or other bills, contact the congressional bill status line at (202) 225-1772. This information is also available on the World Wide Web at <http://thomas.loc.gov/bss/d105query.html> ■*

## Filing a FOIA Request with the U.S. Department of Agriculture

In accordance with the Freedom of Information Act (FOIA) and USDA regulations at 7 CFR, any person can request access to USDA records. The FOIA requires USDA to allow the public to have access unless the information is exempt under the FOIA from mandatory disclosure (for example, classified national security, business proprietary, personal privacy, on-going investigation).

Your request must be in writing. Indicate that you are making a request under the Freedom of Information Act, and address the request to the USDA agency that is responsible for the information you are requesting. If you are not sure which agency within USDA has the information you want, send your request to the following address:

USDA - FOIA Officer  
Office of Communications  
Room 536A  
1400 Independence Ave. SW  
Washington, DC 20250-1300.

Identify the records you want as accurately as possible, with as much detail as you can provide that would be helpful for locating the information (subject matter, date, place where the record was created, the person or office that created it, the present custodian of the record, etc). A request may only seek records that are in existence at the time that the FOIA request is received and may not require that new records be created in response to the request.

Provide your phone number and mailing address so that USDA employees may contact you if needed (for clarification of your request, etc). Specify the fee category (commercial use, news media, educational institution, noncommercial scientific institution, or other) in which you feel your request falls. State the maximum amount of fees that you are willing to pay, or include a request for a fee waiver (include justification provided below).

You may request a fee waiver. Fee waivers may be granted when disclosure of the records is in the public interest because it: (a) is likely to contribute significantly to public understanding of the operations or activities of the government (Does the record concern the operations or activities of the government? Is disclosure likely to contribute to the public understanding of these operations and activities? Will that contribution be significant?); and (b) is not primarily in the commercial interest of the requester.

Requests for fee waivers must be fully documented and justified by written explanation.

A requester may be required to pay fees for searching, reviewing, and copying records. You may be notified in advance if fees will exceed \$25.

**Privacy Act:** Under the Privacy Act (PA), a person may seek access to records that are retrieved by that person's name or other personal identifier, such as social security number or employee identification number. Such records will be made available unless they fall within the exemptions of the PA and the FOIA.

Detailed information concerning USDA policies and procedures for obtaining access to information under the FOIA and the PA is available in 7 CFR Part 1, Subpart A, or by calling the USDA FOIA Officer at 202-720-8164 between the hours of 8 a.m. and 4 p.m.

A complete list of USDA FOIA coordinators is available on the USDA website at <http://www.usda.gov/news/foia.htm> ■



### ● STRAIN SOURCES

Sources of inbred strains of mice and rats, availability, microbiological status and breeding addresses. Size: 7,000 records. Produced by M.F.W. Festing Ph.D., U.K.

### ● VETDOSER

Dosages of antibiotics for antimicrobial therapy in companion animals, large animals, laboratory animals, and exotic animals, including literature references. The database is in Dutch, but will also be translated into English. Size: 4,200 records. Updated annually. Produced by J.D. Kuiper, Ph. D. and A.E.J.M. van deli Bogaard, The Netherlands.

### ● VETERINARY DISSERTATIONS

Veterinary academic dissertations from European universities. Size: 2,400 records. Produced by Euroscience, The Netherlands.

### ● VGR. VET DRUGS (in Dutch)

Description of veterinary drugs registered for use in The Netherlands. Information includes generic names, guidelines for use, dosages, withdrawal times, indications, interactions with other drugs, animals for use in, etc. Produced by the Veterinary Pharmacy, Veterinary Faculty, Utrecht University, The Netherlands.

Even if you are not accustomed to searching databases, PREX is easy to use because it is menu-driven. Searching the PREX system can be performed using boolean logic (use of the terms *and*, *or*, *not*, to allow formation of concepts), truncation of words to ensure retrieval of all pertinent materials or ability to search for phrases. Terms can be limited to particular fields (title, abstract, etc.) or limited by date to allow for a more refined search. Although it is not possible to search multiple databases simultaneously, PREX has an easy to use *save search-execute search* function that makes it easy to move from one database to the next looking for information. Information retrieved can be marked for downloading or printing. Unlike commercial systems, there is no additional charge for downloading or printing records. And lest you be concerned, 98 percent of the information is in English. The only exceptions are VETDOSER, a database of veterinary antibiotic dosages (it is currently in Dutch, but will be translated to English in the near future), and VGR. VET DRUGS, a registry of drugs registered for use in The Netherlands. But why wait. Be adventurous! Buy an *Engels-Nederlands Woordenboek* and learn to *spreek een beetje Nederlands*.

Access to the PREX system for subscribers outside the Utrecht vicinity is best accomplished through a Telnet link (VT100 or VT220 terminal emulation), although you can also connect by modem via national or international telephone networks. I have been using PREX routinely for the past 9 months and have had few problems accessing the PREX host computer by Telnet. Users receive a diskette with PREX-Userinterface (MS-DOS), a menu-driven program to facilitate connection to the PREX host computer. You must specify whether you have an Internet or modem connection. Access is available 24 hours a day. And if you would like to try it out, some of the databases can be accessed free-of-charge at the following Telnet address – 131.211.172.21 Log in as: guest (must be in lower case), password: guest (again in lower case). Or you can access the PREX Web page at

<http://131.211.172.21/>, go to PREX Databases, and follow the instructions for logging on to the system.

Subscriptions run from January to December. The subscription fee depends on your choice of the major databases listed earlier. All users have access to the 16 core databases. Subscriptions that start mid-year are prorated. Subscriptions start at 590 Dutch guilders (Dfl590) (US\$370) for 1 major database to Dfl790 (US\$495) for all major databases. Users receive 120 hours search time per year. Subscribers also receive an easy-to-use manual and password. The few times I had problems I received excellent assistance via e-mail from Theo Bakker, PREX Systems Administrator. There is also a help screen accessible from the main menu.

In short, the PREX on-line information service provides you with low-cost, easy access to a broad range of experimental and applied information that should be indispensable to those working with animals or looking for alternatives to the use of animals in a laboratory or clinical setting.

For additional information on the PREX on-line information service, contact Hans Kuiper at PREX, Utrecht University, PO Box 80.166, 3508 TD Utrecht, The Netherlands, phone: 31 30 25 33 158, fax: 31 30 25 36 747, e-mail: [prex@pdk.dgk.ruu.nl](mailto:prex@pdk.dgk.ruu.nl), website: <http://131.211.172.21>

And by the way, the pH of a Sprague-Dawley rat's abdominal skin is 6.6. ■

## DNA Research in Llamas—How You Can Help

Texas A&M University, in conjunction with Dr. Bradford Smith of Oregon State University, is embarking on a study to record DNA markers in llamas and alpacas in North America. A special area of concern is the isolation of genes that may be contributing to the condition of choanal atresia (CA) in llamas. The Texas A&M research team is seeking blood and/or tissue samples from as many CA crias as possible. Should you encounter cases of CA in your practice, please send either frozen white blood cell pellets, 5 ml minimum, (-20°C); chilled, whole citrated blood, 5 ml minimum, on melting ice (4°C); or frozen tissues, 30 grams minimum, (-20°C) to the pathobiology laboratory for DNA extractions & analysis. Please also send the history and pedigree of the affected cria. Larger amounts of blood and/or tissue will be very useful.

ALL INFORMATION WILL BE HELD IN STRICT CONFIDENCE.

The address is as follows:

Dr. L. Garry Adams, Professor  
Department of Veterinary Pathobiology  
Vet. Medical Research Bldg, Room 103, HWY60W  
College of Veterinary Medicine  
Texas A&M University  
College Station, TX 77843-4467  
email: [gadams@cvm.tamu.edu](mailto:gadams@cvm.tamu.edu)  
phone: (409) 862-4402  
fax: (409) 862-1088

The research team is looking forward to developing a strategy to properly address this issue in North American llamas & alpacas. Your help will be greatly appreciated!



## Announcements...

### ● **Hybridoma Technology and Monoclonal Antibody Product Development Workshop**

This 3½-day hands-on workshop, to be held on October 6-9, 1997, introduces participants to the finer points of hybridoma technology and monoclonal antibody product development. This workshop, sponsored by the American Type Culture Collection (ATCC), is designed to help professional scientists and project supervisors who are involved in developing monoclonal antibodies for research and immunodiagnosis. The workshop combines lectures, discussions, laboratory demonstrations, and exercises. Participants should have prior experience in cell culture, antibody development, and immunochemical methods. Topics will include theory and practice of hybridoma technology, in vitro and in vivo immunization, and optimization of ELISA and western blotting as immunodiagnostic products. The class is limited to 24 participants. Fee for this workshop is \$1,095. For additional information, contact ATCC, 12301 Parklawn Drive, Rockville, MD 20852 USA, phone: (301) 881-2600, fax: (301) 816-4364. e-mail: [workshops@atcc.org](mailto:workshops@atcc.org), website: <http://www.atcc.org/workshops/workshop.html>

### ● **IACUC: The Charge and the Challenge III**

The New Jersey Association for Biomedical Research (NJABR) will be sponsoring a 1-day workshop for Institutional Animal Care and Use Committee members on Tuesday, December 2, 1997, at the Merrill Lynch Training and Conference Center in Plainsboro, NJ. Registration is \$125 for NJABR members and \$150 for non-members. For additional information or to register contact NJABR at phone: (908) 355-4456, fax: (908) 355-2938, e-mail: [njabr@aol.com](mailto:njabr@aol.com)

### ● **Some Preferred Techniques for the Laboratory Rat**

The Canadian Association for Laboratory Animal Science (CALAS) has released this new video that provides instruction for humane handling, injection and blood sampling techniques, and general anesthesia with resuscitation. It offers a unique view of procedures from an animal's perspective, and the emphasis is on refinement of technical procedures. It is available for Canadian\$125 plus shipping from Don McKay, CALAS/ACSAL, Biological Sciences Building, Room CW 401, University of Alberta, Edmonton, Alberta, CANADA T6G 2E9, phone: (403) 492-5193, fax: (403) 492-7257, e-mail: [dmckay@gpu.srv.ualberta.ca](mailto:dmckay@gpu.srv.ualberta.ca)

### ● **Animal Resource Management Software**

General Computer Systems, Inc. (GCS) has released Granite 2.0 animal resource management software that is fully validated to Food and Drug Administration regulatory requirements. The new software adds flexibility to animal ordering, husbandry, and accounting. The full Granite product line includes management of animal health and history information, cost accounting, and tracking of personnel training certifications. For additional information about GCS software packages, contact them by calling (800) 274-2273 toll free

(USA only) or (512) 249-8080, or e-mail: [gcssales@gcsinc.com](mailto:gcssales@gcsinc.com)

### ● **Encyclopedia of Animal Rights and Animal Welfare**

This one-volume ready reference work, edited by Marc Bekoff, Ph.D., with Carron Meaney, will provide essays from recognized authorities in the field addressing the many issues of animal rights and animal welfare. This publication is tentatively scheduled for publication in early 1998 and will be available from Greenwood Press, 88 Post Road West, P.O. Box 5007, Westport, CT 06881-5007, phone: (203) 226-3571, fax: (203) 222-1502. For more information, contact Marc Bekoff, Ph.D., University of Colorado, Department of E.P.O. Biology, Boulder, CO 80309-0334 USA, e-mail: [marc.bekoff@colorado.edu](mailto:marc.bekoff@colorado.edu)

### ● **Animal Issues**

The aim of this new journal is to investigate philosophical and ethical issues related to human/animal interactions. Papers are invited on any topics within this general area. Word length should be 4,000-8,000 words, and papers should be submitted on a Macintosh disk, by e-mail, or in hard copy to the editor. Subscription rates for Australia and New Zealand are Aus\$12 per issue; other countries are Aus\$20 per issue. For more information or to order contact D. Russell, Ph.D., The Editor, Animal Issues, Department of General Philosophy, University of Sydney, N.S.W. 2006, Australia.

### ● **FEDIX Opportunity Alert**

The Federal Government is funding a free e-mail service that automatically delivers targeted research and education funding opportunities within your specific areas of interest. To participate, register for this service at <http://www.ramsfie.com/opportunity.htm>, then select the keywords that identify your areas of interest. Beginning with the next business day, a daily search of new Federal opportunities will be conducted on your behalf, and those that match your interests will be e-mailed to you. Your tax dollars at work.

### ● **Venom-L List**

This discussion list is for professionals and those with a serious interest in reptile, amphibian, or invertebrate venoms or toxins; snakebites and other types of envenomations; venom, antivenin, and alternative treatment research; laboratory captive care, husbandry, and venom extraction and preparation of venous reptiles, amphibians, and invertebrates; first-aid and clinical management of envenomations; medical use of venoms, toxins, or secretions from these animals or; the taxonomy, and natural history of venomous reptiles, amphibians, or invertebrates. This list is noncommercial and non-profit and is provided as a public service by ICOMM Software of Canada. To subscribe: Leave subject line blank, send e-mail to [majordomo@icomm.ca](mailto:majordomo@icomm.ca), in body of message write: subscribe venom-l



## ● Available on the World Wide Web

### – Information on Alternatives Databases

<http://oslovet.veths.no/databasesintro.html>

This database, compiled by Adrian Smith (NORINA), Hans Kuiper (PREX) and Margot van der Kamp (Netherlands Center for Alternatives), is an initiative that developed from the European Center for the Validation of Alternative Methods Workshop on Alternatives Databases and the 2nd World Congress on Alternatives and Animal Use in the Life Sciences. It currently lists 21 sites from around the world that contain information on aspects of the 3Rs (reduce, refine, replace) as they relate to research, testing, and education.

### – International Animal Welfare Laws

<http://www.uni-giessen.de/tierschutz/>

This site contains full-text copies of various countries' animal welfare laws. Most are in German or the language of the country of origin.

### – European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes

<http://www.uku.fi/laitokset/vkek/Sopimus/convention.html>

Full-text English version of this document.

### – Australian and New Zealand Council for the Care of Animals in Research and Teaching (ANZCCART)

<http://www.adelaide.edu.au/ANZCCART/>

Homepage of ANZCCART.

### – Netherlands Center Alternatives to Animal Use

<http://www.pdk.dgk.ruu.nl/nca/>

The NCA stimulates development, validation, and application of alternatives to animal experiments in the Netherlands. The site also has available English abstracts of a symposium held on the use of human tissue as alternatives to animal experiments. The abstracts can be found at <http://www.pdk.dgk.ruu.nl/nca.dir/abstra.htm>

### – Pig Disease Information Center

<http://www-pdic.vet.cam.ac.uk/>

The largest and most advanced swine health information service in the world located at the Department of Clinical Veterinary Medicine at the University of Cambridge. Excellent resource on diseases, welfare, epizootiology, breeding and infertility, and news. Also has information on the outbreak of foot-and-mouth disease in Taiwan.

### – Primate Enrichment

<http://www.brown.edu/Research/Primate/enrich.html>

Contains articles on environmental enrichment and psychological well-being of laboratory primates. Articles are taken from the Laboratory Primate Newsletter.

### – Environmental Enhancement of Caged Rhesus Macaques

<http://www.primate.wisc.edu/pin/pef/slide/intro.html>

This site contains 60 slides that are a photographic documentation of the environmental enrichment research carried out by Viktor Reinhardt while a veterinarian and ethologist at the Wisconsin Primate Center.

### – Association for Assessment and Accreditation of Laboratory Animal Care International

<http://www.aaalac.org>

This site contains complete information on AAALAC's accreditation program, along with other news and resources for the animal care and use community.

### – U.S. Government Statistics

<http://www.fedstats.gov>

The Fedstats site enables visitors to make keyword searches of statistics from more than 70 agencies, including the Census Bureau. ■

## IATA LIVE ANIMALS REGULATIONS

*24th Edition, Effective 1st October, 1997*

The International Air Transport Association (IATA) Live Animals Regulations (LAR) is the international standard for transporting live animals by air. The 24th edition contains the latest amendments, which have been approved by the IATA Live Animals & Perishables Board in consultation with the Convention on International Trade in Endangered Species (CITES), the Office International des Epizooties, and a number of countries and national authorities, such as the European Union and the U.S. Fish & Wildlife Service that have formally adopted the LAR as the official guideline for transporting live animals and/or endangered species. The amendments also take into account input from other interested parties and international organizations concerned with animal welfare.

The 24th LAR has been improved with revised presentation of specific information concerning crating materials, principles of container design, stocking densities, ventilation, and food and water requirements for various species, which enables the users to access needed information quickly. Other improvements include updates on shipper's responsibilities, government and carrier exceptions, CITES Appendices, specific container requirements for dogs and cats, birds, horses, reptiles, lobsters, aquatic animals, insects, wild mammals, and laboratory animals.

Published in English, French and Spanish, the IATA Live Animals Regulations can be ordered from:

Customer Services  
International Air Transport Association  
2000 Peel Street  
Montreal, Quebec  
Canada H3A 2R4  
phone +1 (514) 985-6326, Canada and USA only  
800-716-6326  
fax +1 (514) 844-7711



# "Meeting the Information Requirements of the Animal Welfare Act"

The Animal Welfare Information Center (AWIC) of the U.S. Department of Agriculture, National Agricultural Library (NAL) has developed a 2-day workshop for individuals who are responsible for providing information to meet the requirements of the Animal Welfare Act. Representatives from NIH, Office of Protection from Research Risks, and USDA's APHIS, Animal Care will be available for questions and answers. The workshop will be held at NAL in Beltsville, Maryland.

The act requires that investigators provide Institutional Animal Care and Use Committees (IACUC) with documentation demonstrating that a thorough literature search was conducted regarding alternatives. An alternative is any procedure that results in the reduction in the numbers of animals used, refinement of techniques, or replacement of animals.

The objectives of the workshop are to provide:

- an overview of the Animal Welfare Act and the information requirements of the act.
- a review of the alternatives concept.
- a comprehensive introduction to NAL, AWIC, and other organizations.
- instruction on the use of existing information databases/networks.
- online database searching experience.

This workshop is targeted for principal investigators, members of IACUC's, information providers, administrators of animal use programs, and veterinarians. All participants will receive a resource manual.

The workshops will be held on March 4-5, June 24-25, and October 21-22, 1998. The workshop will be limited to 20 people. There is no fee for the workshop.

For more information, contact AWIC at phone: (301) 504-6212, fax: (301) 504-7125, or e-mail: [awic@nal.usda.gov](mailto:awic@nal.usda.gov), or write to: Animal Welfare Information Center, U.S. Department of Agriculture, National Agricultural Library, 10301 Baltimore Avenue, Beltsville, MD 20705-2351

The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs and marital or familial status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, DC 20250, or call 1 (800) 245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.

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Agricultural Research Service  
National Agricultural Library  
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Beltsville, MD 20705-2351

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